The Duke TPRC reports that high levels of parental monitoring can moderate the genetic risk of externalizing behavior associated with the GABRA2 receptor.

Role of GABRA2 Across Behavior By Parental

As investigators identify genes involved in psychiatric disorders, they are also studying how the risk associated with susceptibility genes manifests across development and in conjunction with the environment. These analyses aim to characterize the pathway of risk associated with GABRA2, a gene previously associated with adult alcohol dependence, to test for an association between GABRA2 and trajectories of externalizing behavior from adolescence to young adulthood and for moderation of genetic effects by parental monitoring. Data were analyzed from the Child Development Project; a community-based sample of families enrolled at 3 sites in Nashville and Knoxville, Tennessee, and Bloomington, Indiana, as children entered kindergarten in 1987 and 1988, with yearly assessments conducted since that time. A saliva sample was collected for DNA at the 2006 follow-up, with a 93% response rate in the target sample. The analyses reported in this paper were on the white subset of the sample (n = 378). Growth mixture modeling was conducted using Mplus to identify trajectories of externalizing behavior and to test for effects of GABRA2 sequence variants and parental monitoring. Parental monitoring was measured at 11 years of age; Child Behavior Checklist youth reports of externalizing behavior at ages 12, 14, 15, 16, 17, 19, 20, 21, and 22 years. Two classes of externalizing behavior emerged: a stable high externalizing class and a moderate decreasing externalizing behavior class. The GABRA2 gene was associated with class membership, with subjects who showed persistent elevated trajectories of externalizing behavior more likely to carry the genotype previously associated with increased risk of adult alcohol dependence. A significant interaction with parental monitoring emerged; the association of GABRA2 with externalizing trajectories diminished with high levels of parental monitoring. These findings underscore the importance of studying genetic effects across development and of identifying environmental factors that moderate risk. Dick D, Latendresse S, Lansford J, Budde J, Goate A, Dodge K, Pettit G, Bates J. Role of GABRA2 in trajectories of externalizing behavior across development and evidence of moderation by parental monitoring. Arch Gen Psychiatry 2009;66(6):649-657. [Director’s Report – Feb 2010, p. 59]